Your notes

KS3 Maths: revision notes

Factors, multiples and primes

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Multiples and factors

- The **multiples** of a number are in its times table: the **multiples** of 6 are 6, 12, 18, 24...
- The **factors** of a number divide into it exactly. Find them in pairs: the **factors** of 12 are 1 and 12, 2 and 6, 3 and 4.

Prime numbers

- A **prime number** has exactly two **factors**: 1 and itself. The primes under 30 are 2, 3, 5, 7, 11, 13, 17, 19, 23 and 29.
- 1 is not prime, because it has only one **factor**. 2 is the only even prime.
- Every number can be written as a **product** of primes. Use a **factor** tree: $60 = 2 \times 2 \times 3 \times 5 = 2^2 \times 3 \times 5$.

HCF and LCM

- The **highest common factor** (HCF) is the biggest number that divides into both numbers: the HCF of 12 and 18 is 6.
- The **lowest common multiple** (LCM) is the smallest number that both numbers divide into: the LCM of 4 and 6 is 12.
- With **prime factors**, the HCF multiplies the primes the numbers share, and the LCM multiplies the highest power of every prime.
- LCM problems: buses every 12 minutes and trams every 8 minutes leave together again after 24 minutes.

Square and cube numbers

- **Square numbers**: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144.
- **Cube numbers**: 1, 8, 27, 64, 125.

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Key terms

Multiple	A number in a number's times table.
Factor	A number that divides into another number exactly.
Prime number	A number with exactly two factors: 1 and itself.
Prime factor	A factor that is a prime number.
Product	The answer when numbers are multiplied.
Highest common factor	The biggest number that is a factor of two or more numbers (HCF).
Lowest common multiple	The smallest number that is a multiple of two or more numbers (LCM).
Square number	A number multiplied by itself, such as $16 = 4 \times 4$.
Cube number	A number multiplied by itself twice, such as $27 = 3 \times 3 \times 3$.

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. Which of these is a prime number?
2. Which of these is a multiple of 7?
3. How many factors does 12 have?
4. What is the highest common factor (HCF) of 12 and 18?
5. What is the lowest common multiple (LCM) of 4 and 6?
6. Which of these shows 60 as a product of prime factors?
7. What is the only even prime number?
8. Is 1 a prime number?

Answers

1. 13
2. 42
3. 6
4. 6
5. 12
6. $2^2 \times 3 \times 5$
7. 2
8. No, because it has only one factor

What to do next

Practise 12 questions on this topic

Try 4 exam questions, with mark schemes

Read the lesson, one step at a time

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